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Agriculture Development Fund

FINAL REPORT

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EVALUATING BONE OIL AS A REPELLANT TO PREDATOR ATTACKS ON SHEEP, UNDER LARGE FLOCK RANGE MANAGEMENT SYSTEM

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Bone Oil Project #1999027
Final Report December 01 2001

Submitted by Gordon Schroeder

Summary:

Our objective in this project was to evaluate bone oil as a predator control option. We wanted to determine what effect bone oil would have in a number of different situations.

- **Effect when used in a large range type situation**
- **Effect in a smaller brush range situation**
- **Effect on working dogs**
- **Effect on meat and wool quality**
- **Is it economical to use**

Once these things were tested we could make a recommendation to the producers on the use of bone oil as a predation option.

Observations from our testing indicate the following:

1 Application on a frequent regular basis on all sheep is essential for bone oil to be used successfully. When sheep are in a range situation it is difficult for regular application to occur unless you night pen or have only one source of water that all sheep must access for water, in large flocks on the range this is not practical. Dry, hot or windy conditions make application difficult as product dries out quickly on the applicators and maintenance of applicators is very labour intensive, this makes the product economically non-viable. **Conclusion: bone oil is not best suited to the range situation.**

2 In smaller bush range situations the bone oil seemed to work better, regular application was more possible (sheep could be directed to application easier). Applicators did not need as much maintenance, not as lobour intensive. **Conclusion: results were better, predation was down.**

3 Some effect was noticed on working dogs when first introduced to the bone oil. Dogs would shy away from the sheep with an application of bone oil at first then after a time they would it seemed get accustomed to the product and had no effect on the dogs. **Conclusion: Bone oil was not a big issue for the dogs; they seem to adjust to the product.**
Question arises if dogs get accustomed to the product do coyotes do as well?

4 Effect on wool and meat was a hard one. Laboratory residue tests could not be done within the budget we had to work with. Problem being; what was the residue that we were looking for, (what was the makeup of the bone oil). Research has been done in other tests on this, I have included a copy of these test results in this report. We did however do some visual testing. Visual testing showed no apparent effect on wool quality. When application was stopped in a matter of a few days there was no sign of the bone oil. The lanolin on the wool seemed to prevent absorption into the wool fiber. This is the reason for the need for frequent application. A problem occurred when working with the sheep that had a resent application of bone oil. When products was in contact with clothing it remained for along time, almost permanently, even after washing. Odor on the skin could be removed after several washings.

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Results from Ontario Ministry of Agriculture Bone oil report on meat quality.
Method:
Tissue residues: A lamb was treated daily for a week with a small amount of bone oil on the shoulder for a week. The aim was to apply as much oil as the sheep would receive on a normal application. After a week the lambs was slaughtered, jointed and frozen in a commercial freezer. Loin chops from this lamb were grilled at the same time as similar chops from the untreated lamb. Sixteen volunteers undertook a blind taste test of the two lamb samples.
Results:
There was no detectable odor from the lamb at cooking. The 16 volunteers in the blind test could not detect any difference in the two samples.
Conclusion: No effect on the taste of the lamb meat, dose effect humans if not handled properly and no effect on wool quality.

5 Is bone oil economical? It may be in some situations, but limited. {Product itself is cheap however labour costs to guarantee proper application is high. In situations where a hobby flock is involved it may be an economical alternative.
Conclusion: There are more economical and practical options for producers to use for predation control.

Final Test Conclusion: During our testing we did see some reduction in predation because of the bone oil. However the economics of using the product were not great, proper and frequent application is needed for the product to be successful and in order to make sure this happens labour costs are high. Most producers will not be willing to put the amount of time required to get proper application for the product to be successful. When used in conjunction with guard dogs it increases to success of the product. The care required in handling sheep with application is also a deterrent to using the product. The human reaction to smelling the product was a sharp pain in the nasal cavity and developed into a headache. Even though the bone oil has some positive results in some situations, in most cases it is not practical.

Project Activities
Testing was done during the summer of 2000 and 2001. In the summer of 2000 testing took place at the Elbow PFRA pasture with 1400 ewes being used and in the Southwest Grazing Pasture at Tompkins with between 4000 to 5000 sheep and lambs. The group of ewes at the Tompkins pasture was divided into several flocks allowing us to use bone oil on some flocks and not on others. This allowed us to see what effect the bone oil had. During the summer of 2001 we decided to test only at the Tompkins pasture. We felt that the testing at the Elbow pasture was very limiting do to the fact that sheep are night penned and we have a shepherd and guard dogs with that flock 24 hours a day. Testing was done at the Tompkins pasture during the summer of 2000; days of testing were reduced due to the very dry hot windy conditions. Proper application was almost impossible due to drought and need for movement of sheep, dry hot winds would dry out the product and applicators would have to be serviced at least four times a day (we learned that drought, heat, and wind are not compatible with bone oil).

Throughout the projected we have been making producers aware that the testing was taking place and some of our observations. We did not however release to them any of the preliminary results; we felt that until testing was completed we did not what any assumptions made. Now that testing is completed we will be issuing a final report that will be going out to all sheep producers through our newsletter "Sheep Shape". In this report we will again acknowledge the Agriculture Development Fund and their contributions to this project. Reports will also be given at producer meetings and seminars on the results of this project.